

## **REMARKS**

In the Office Action dated December 18, 2009, claims 27, 28 and 47-49 were rejected under 35 U.S.C. §102(b) as being anticipated by Rosenberg.

This rejection is respectfully traversed for the following reasons.

The subject matter disclosed and claimed in the present application is concerned with the detection of diastolic heart failure (DHF). As those of ordinary skill in the field of cardiology are well aware, DHF is not the same as congestive heart failure (CHF). The Rosenberg reference is concerned exclusively with the detection of CHF, and does not provide any teachings that are relevant for the more specific detection of DHF. As explained in the introductory portion of the present specification, conventional techniques, of the type exemplified by the Rosenberg reference, for detecting CHF are in many ways not specific enough to detect the different conditions that represent DHF.

For example, the Rosenberg reference is concerned with detecting the end diastolic volume (EDV), which has a correlation to CHF. There is no teaching or suggestion in the Rosenberg reference that monitoring or detecting EDV would have any benefit in early detection of DHF, and therefore there is no reason why a person of ordinary skill in the field of cardiology seeking to devise techniques for the detection, early or otherwise, of DHF would have any reason to consult a reference such as the Rosenberg reference.

For the purposes disclosed in the Rosenberg reference, an EDV sensor 22 supplies a signal to a diastolic monitor 30. The functioning and operation of the diastolic monitor 30, however, is only generally described at column 5, lines 22-33 of the Rosenberg reference, and it appears merely to be a circuit that converts the

incoming analog signal representing EDV into a digital, or otherwise useable, signal that is supplied to the pacemaker controller 32. Other than signal conversion, there is no actual "monitoring" that is described as taking place in the diastolic monitor 30 of Rosenberg.

As noted by the Examiner, in step 212 of Figure 4 of the Rosenberg reference, a cardiac cycle interval is determined, and it is stated at column 8, lines 43-48 that in this step 212, the pacemaker controller 32 directs the diastolic monitor 30 to determine a cardiac cycle interval. This, however, is not related only to the diastolic phase of the heart, but is an overall cardiac interval.

In view of the fact that the Rosenberg reference does monitor the overall cardiac interval, and can shorten this overall interval under appropriate conditions, which may have the consequence of also shortening the diastolic phase (as well as the systolic phase) of the overall cycle, there is no teaching or suggestion in the Rosenberg reference to make use of *only* a particularly time duration associated with the diastolic phase of the heart, as disclosed and claimed in the present application. This is because only the present Applicants, and not Rosenberg has had the insight to recognize that by monitoring (extracting) *only* the time duration that is specified in the independent claims of the present application, an accurate DHF indicator can be determined.

Independent claims 27, 47 and 48 have been amended consistent with the above discussion to make clear that the DHF detector *extracts* a time duration representing only a predetermined phase of diastole of the heart, and uses this time duration to determine whether a DHF state exists, by determining whether this time duration exceeds an upper limit value or falls below a lower limit value. This

extraction of only a predetermined phase of diastole is clearly shown in Figure 1b of the present application, and the determination of whether this time duration is within a time interval defined by upper and lower limits is clearly shown in Figure 6. No such method or apparatus is disclosed or suggested in the Rosenberg reference.

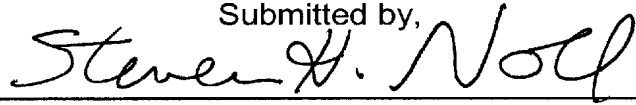
Claims 29-43 and 50-63 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rosenberg in view of Salo et al. This rejection is respectfully traversed for the same reasons discussed above with regard to the Rosenberg reference. Even if the system and method disclosed in Rosenberg were modified in accordance with the teachings of Salo et al, none of claims 29-43 or 50-63 would result, for the reasons noted above in connection with the Rosenberg reference.

Claims 44-46 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rosenberg in view of Salo et al, further in view of Paul et al. The above arguments are applicable to this rejection as well. For those reasons, even if the Rosenberg method and apparatus were further modified in accordance with the teachings of Salo et al and Paul et al, the subject matter of claims 44-46 would not result.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by,

 (Reg. 28,982)

Steven H. Noll  
SCHIFF, HARDIN LLP  
**CUSTOMER NO. 26574**  
Patent Department  
6600 Sears Tower  
233 South Wacker Drive,  
Chicago, Illinois 60606  
Telephone: 312/258-5790  
Attorneys for Applicants

CH2\8432247.1